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The Cache Creek Burial Site (EeRh 1), British Columbia

DAVID L. POKOTYLO, MARIAN E. BINKLEY, and A. JOANNE CURTIN

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Abstract: Five wood cist burials excavated between 1954 and 1956 at EeRh 1, near Cache Creek in south-central British Columbia, are reported. Radiocarbon dates for four of the burials range from 700 B.P. to the second millennium B.P. These dated burials are the earliest wood cist graves reported for the Canadian and Columbia Plateaus. Grave goods of utilitarian and non-utilitarian items accompany three of the four burials with archaeological provenience. Comparative analysis of the Cache Creek burials with other late prehistoric cist and pit burials in south-central British Columbia indicates that the type and quantity of grave goods deposited were not based on the age and sex of the deceased. The skeletal remains of five individuals are identified as: an adult female, an adolescent female, two children, and a newborn. All individuals are of aboriginal affinity and are within the range of variation noted for previously reported skeletal material.

KEY INDEX WORDS: *Archaeology, physical anthropology, southern interior Plateau, mortuary pattern.*

Introduction

Between 1954 and 1956, Charles E. Borden and amateur archaeologists excavated five burials from EeRh 1, near Cache Creek, British Columbia. Sanger (1968:140) briefly reported these burials but no subsequent research was conducted on the excavated material. This report presents the results of recent analyses of the EeRh 1 burials, presently in the collections of the Archaeology Laboratory at the University of British Columbia Museum of Anthropology, that provide new information on antiquity of the burials, prehistoric mortuary practices at the site, and age, sex and morphological characteristics of the skeletal remains. The Cache Creek data are also compared with published reports of prehistoric archaeological burials from the southern interior Plateau and the north Coast of British Columbia.

Site Setting and Excavations

Borden recorded EeRh 1 in 1954 and noted "at least" 15 boulder cairns distributed over a 30 m by 50 m area of the lower slopes of the Bonaparte River Valley (Borden 1954). The site was located approximately 50 m above the alluvial valley bottom and 1 km northeast of the confluence of Cache Creek and the Bonaparte River (see Figure 1). Although Borden did not report habitation debris within the area containing the cairns, a discontinuous surface scatter of chipped stone tools and lithic debris is present in the immediate vicinity of the site (Borden 1954, 1956; Pokotylo 1977; Whitlam 1980).

The lower valley slopes in the site vicinity consist of a thin veneer of aeolian sands and silts on a remnant paraglacial alluvial fan (Ryder 1971, 1976). The site area and environs are within the Ponderosa Pine-Bunchgrass biogeoclimatic zone (Krajina 1965, 1973). Contemporary vegetation cover has been altered by modern land use and is limited to bunchgrass (*Agropyron* sp.), sagebrush (*Artemisia tridentata*), and prickly pear cactus (*Opuntia fragilis*).

Borden test excavated one cairn at EeRh 1 in 1954 and found that it covered a primary burial (designated here as Burial 1). He returned to the site in 1956 and noted that local amateur archaeologists had excavated four other cairns (Borden 1956). Skeletal remains from one of these burials were donated to the UBC Laboratory of Archaeology; they are identified in the present report as Burial "X". The 1956 field investigations involved the mapping of 13 cairns (see Figure 2), and the excavation of two cairns (nos. 6 and 8) which exposed three primary burials. These are designated here as Burials 6, 8 and 8a. The cairns received no further field study. Borden revisited the site in 1976 and observed that it had been destroyed by residential development.

David L. Pokotylo, Department of Anthropology and Sociology, University of British Columbia, Vancouver, British Columbia V6T 2B2
Marian E. Binkley, Department of Sociology and Social Anthropology, Dalhousie University, Halifax, Nova Scotia B3H 1T2
A. Joanne Curtin, #206-1650 West 13th Avenue, Vancouver, British Columbia V6J 2G7.

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Burials

Interments

Each burial excavated by Borden contained the skeletal remains of a single individual in a shallow pit lined with a wooden stake cist. The "cairns" that covered the burials consisted of circular rock pavements 1-2 m in diameter (see Table 1; Figure 3). In all but one case, the cairns marked the exact locations of subsurface burial facilities. The excavation of Cairn 8 exposed two separate inhumations (see Figure 4), one (Burial 8) directly under the cairn, and the other (Burial 8a) at the eastern margin of the rock pavement. The present analysis was unable to determine if Burial 8a was unequivocally associated with the cairn.

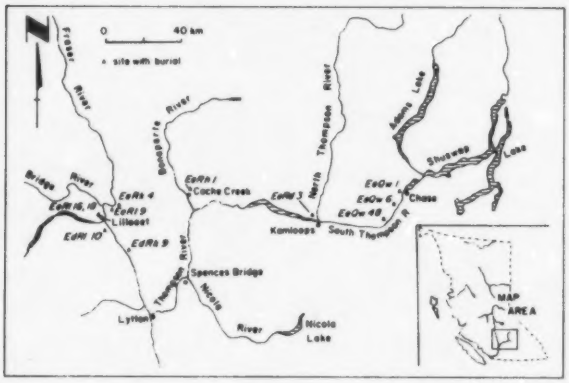

FIGURE 1
Location of EeRh 1 and other reported burials in south-central British Columbia.

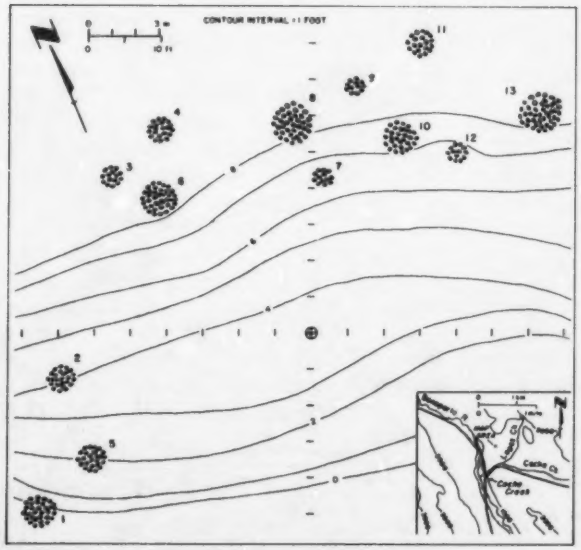

FIGURE 2
Location of boulder cairns at EeRh 1 (recorded by C. E. Borden, 1956).

Depth of interment ranged from 43 to 74 cm below ground surface (see Table 1). The cists consisted of vertical split stakes and slabs of poplar (*Populus* sp.) which surrounded the skeletal remains (see Figure 5). Borden noted that the cists were often difficult to delineate due to the fragmentary condition of the wood. Stakes were first evident at varying depths below surface and, when they could be mapped, extended below the skeletal remains (see Table 1). The stakes in the Burial 1 cist were approximately 5 cm in diameter, however, this dimension is not reported for the other cists. Field notes indicate that the tops of "some" stakes in Burials 1 and 6, and of all stakes in Burial 8, were charred. None of the skeletal remains from these burials, however, are burnt. Neither the stakes nor skeletal remains from Burial 8a had evidence of burning.

A loose matrix of sand, silt, and small pebbles, readily distinguishable from the surrounding compacted till, filled the burial pits. A lens of red ochre, approximately 25 cm in diameter and 1 cm thick, was observed in the Burial 1 pit fill at a depth of 28 cm below surface, and 46 cm above the skeleton. The Burial 6 pit fill yielded pieces of yellow ochre at an unrecorded depth. In Burial 8, pit fill from 25 cm below surface down to the skeletal remains contained large amounts of charcoal and black ash. The Burial 8 pit was the only one lined with boulders.

All skeletons were oriented approximately east-west. Burials 6 and 8a lay loosely flexed on their right sides, with crania to the east. The Burial 1 individual was lying loosely flexed on its right side with the head to the west. Patches of red ochre covered the right parietal and occipital parts of the Burial 1 cranium. The body in Burial 8 had been placed on its back, head to the east, with arms extended on both sides and legs tightly flexed to the right.

Little information is available on the archaeological context of Burial "X", recovered by amateur excavations. Photographs donated with the skeletal remains show a loosely flexed body placed on its left side and encased in a wood cist. This is probably the burial that Sanger (1968: 140) notes as having a charred "cedar" slab cist.

FIGURE 3
Circular rock pavement covering Burial 1, EeRh 1.

TABLE 1

Attributes of EeRh 1 interment facilities

Attribute	*Burial 1*	*Burial 6*	*Burial 8*	*Burial 8a*
Maximum diameter of cairn (m)	1.75	1.90	2.00*	2.00*
Burial depth (cm below ground surface)	74	63	66	43
Stake cist depth (cm below ground surface)	"near surface" to 76 cm	25 cm to ca. 63 cm	?	25-43

? not reported

* cairn is associated with Burials 8 and 8a

Grave Additions

Two main categories of grave additions are distinguished: (1) artifacts in direct association with the body, and (2) artifacts and faunal remains from pit fill overlying the skeletal remains. Artifacts directly associated with skeletal remains are assumed to result from prehistoric mortuary practices. Items in the pit fill may also reflect mortuary behaviour, or may simply represent mixed material from surrounding deposits. The lack of detailed stratigraphic data, however, prevents an evaluation of the cultural context of the fill material. Thus, any inferences based on the fill materials should be treated with caution. Each data category is described separately below.

Artifacts in direct association with skeletal remains

During the excavation of Burial 1, Borden observed fragments of rush matting that clung tightly to many parts of the skeleton. A fragment of birchbark, approximately 25 cm by 38 cm in size, rested on top of the matting that covered the knees, and a single piece of vitreous basalt debitage was found among the bark fragments. Fragments of two ply cordage were near the pelvis.Three complete and two broken points of vitreous basalt (see Figure 6, a-e) were present near the skull and pelvis. The location of the points relative to the skeletal remains and the nature of the broken specimens (i.e., one lacks a blade portion, the other is missing a basal corner) suggests that the points were grave additions rather than a cause of death. The points are small, side-notched forms that are finely flaked on both surfaces. They have triangular outlines, narrow U-to-V shaped notches, narrow necks, and relatively straight bases. Table 2 presents the metric dimensions of the points. All specimens are assigned to the Kamloops side-notched point type (see Stryd 1972: 20-21). A retouched flake of vitreous basalt (see Figure 6, f) lay adjacent to the knees.

Burial 6 had a large, finely flaked biface of heat-altered chert placed in the lap (see Figure 6, g; Figure 7). The specimen is 82.5 mm long, 36.1 mm wide, and 6.9 mm thick. Sanger (1968:140) reported that the entire body had originally been covered with matting and a piece of poplar bark placed over the cranium. However, the excavation field notes and artifact record for Burial 6 note fragments of matting, identified as sage brush (*Artemisia tridentata*) only near the right femur and right elbow of the skeleton.

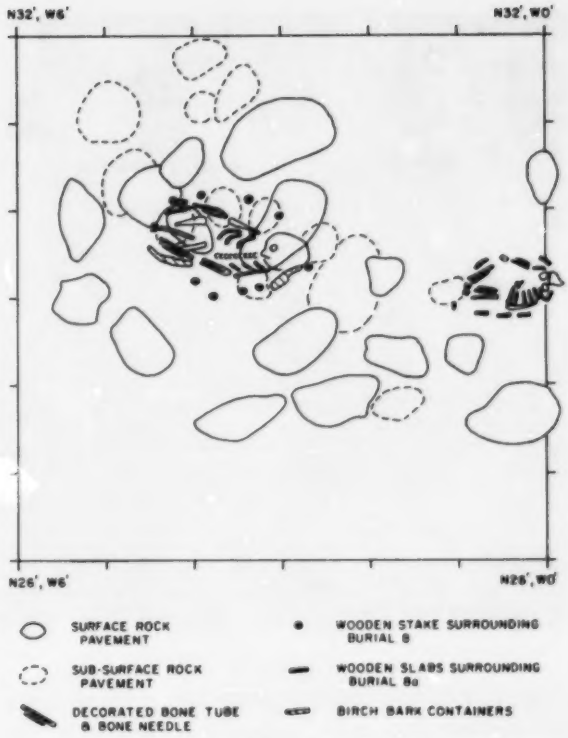

FIGURE 4

Plan map of Cairn No. 8 and Burials 8 and 8a, EeRh 1.

FIGURE 5

Wooden stake cist surrounding Burial 6, EeRh 1. Trowel points north.

Burial 8 had the largest assortment of grave inclusions among the excavated sample from the site. Fragments of matting enclosed part of the right lower arm. Twenty-one decorated wapiti (*Cervus elaphus*) canine teeth, arranged in three rows around the neck vertebrae, are inferred to represent a necklace. Each tooth is perforated at the base of the root. Eight teeth are also decorated with incised lines along the lateral margins (see Figure 8). One specimen has an undecorated *Dentalium* shell bead set into the perforation. Additional undecor-

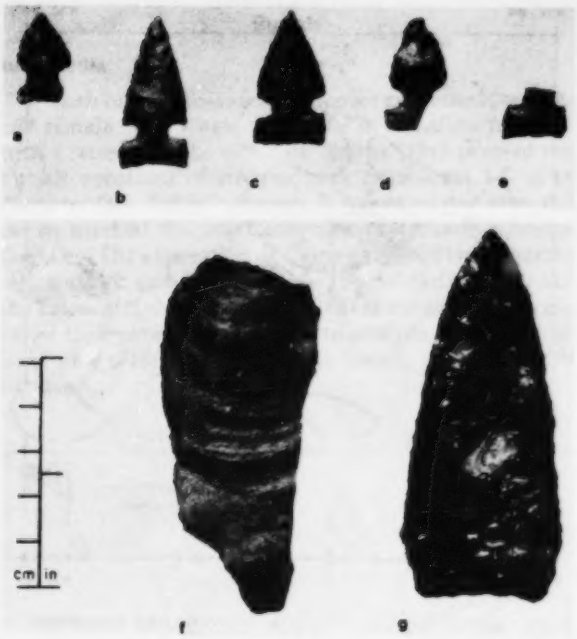

FIGURE 6

Lithic tools associated with EeRh1 burials. Burial 1: a-e, basalt points; f, retouched basalt flake. Burial 6: g, chert biface.

ated dentalium segments and beads, possibly spacers on the necklace, clung together in the matrix between the teeth. Two small shallow pouch-like containers of birch-bark, both of which were empty, accompanied the burial. The containers lack any evidence of sewing. They were made by cutting two slits at each end of a rectangular piece of bark and folding the centre end piece over the side flaps and into the container. One container lay adjacent to the left foot and the other next to the occipital area of the skull. They measure 165.5 mm by 51.0 mm, and 215.0 mm by 36.0 mm, respectively.

An eyed bone needle (see Figure 9, b) and a decorated bone tube into which the right fibula of a *Lynx* sp. was

FIGURE 7

EeRh 1, Burial 6 with chert biface located between the radius and femur. Trowel points north.

TABLE 2

Dimensions of points from Burial 1, EeRh 1

Artifact No.	*Length (mm)*	*Width (mm)*	*Thickness (mm)*	*Neck Width (mm)*
EeRh 1:3	25.1	—	3.1	—
EeRh 1:4	20.7	12.8	3.7	7.1
EeRh 1:5	30.1	15.9	4.4	8.9
EeRh 1:6	34.1	15.7	3.2	6.7
EeRh 1:7	—	—	3.2	7.0

inserted (see Figure 9, c, d) lay together over the left tibia of the skeleton. The needle is 103.8 mm long, 41.0 mm wide, and 10.0 mm thick, and has a flattened oval cross-section. It is eyed at the proximal end by incising from both faces. The remnant of a second eye on the proximal end exhibits a highly worn edge, suggesting that the specimen had broken across a former eye, been refurbished and then extensively reused.

The decorated bone tube is made from the right tarsametatarsus of a sandhill crane (*Grus canadus*). Both the distal and proximal portions of the bone are removed and the ends of the tube are worn smooth. The specimen measures 174.1 mm long. The average outside diameter is 10.5 mm. An oval perforation extends through both sides of the tube at the approximate midpoint of the long axis. The tube is decorated with two types of incised geometric motifs similar to ones identified by Boas (1900:377-379) and Sanger (1968:133-135). All lateral margins of the tube have two or three groups of short parallel lines oriented perpendicular to the long axis. A zigzag pattern covers the middle surface area of the two unperforated sides. A small remnant of the proximal end of the lynx fibula is present; the distal end is absent. The bone bears no evidence of intentional alteration.

Fragments of tule rush (*Scirpus* sp.) matting covered most of the post-cranial skeleton from Burial 8a. No grave goods were present.

Items in pit fill

Pit fill from above Burial 1 yielded a small rodent femur and a rib fragment from an unidentifiable large mammal. Specific depths of both items are unrecorded.

Burial 6 pit fill contained fragmentary faunal remains and a worked bone artifact of unknown function. All items were recovered 24-28 cm below surface. A minimum vertical distance of 35 cm separates the pit fill material from the Burial 6 skeleton. The worked bone artifact (see Figure 9, a) is 70.4 mm long, 7.5 mm wide, and 5.0 mm thick. The specimen has a plano-convex cross-section, the convex face shaped by carving. One end has a steep conical carved point and the other a flattened spatulate-shaped surface that is ground and polished. Faunal remains include fragments of a mandible, teeth, left and right tibia shafts, and four thoracic and lumbar vertebrae, all identified as *Canis* sp.; a mule deer (*Odocoileus hemionus*) ulna proximal end fragment, and a single salmon (*Oncorhynchus* sp.) vertebra.

A mule deer scapula fragment was the only item recovered from Burial 8 pit fill. The item was found 41 cm below surface and 25 cm above the human skeletal remains.

Skeletal Remains

Skeletal and dental materials from the burials are inventoried in Tables 3 and 4 respectively, according to their associated burial cairn. All skeletons in the sample are virtually complete.

Attributes used to estimate the ages of the skeletons are: tooth eruption and wear pattern, epiphysis and suture closure, and development of osteoarthritis (see Anderson 1962; Bass 1971; Stewart 1979). Relative robusticity, morphological variation in the pubic basin, and sciatic notch and the pubic angle, and the presence-absence of a preauricular sulcus provide an estimate of the sex of the adult skeletons (Anderson 1962). Phenice's visual methods based on morphological variation of the *os pubis* (Phenice 1969) provide a double check. No attempt was made to determine the sex of the sub-adult skeletons. Individual features and pathologies are also noted.

Post-cranial and cranial measurements for the adult skeletons employ similar techniques to Cybulski *et al.* (1981) and Cybulski (1980). Trotter and Gleser's (1958) femur and fibula regression formula for the Mongoloid standard provides an estimation of living stature. The Mongoloid standard accurately estimates the living stature of contemporary Amerindian populations of British Columbia (Cybulski 1978). Recalculation of the living stature of the Gore Creek site (EeQw 48) skeleton (see Cybulski *et al.* 1981) made it comparable to the skeletons from Cache Creek.

The Burial 1 skeleton is judged to be that of a young female. The cranium is small and delicate in appearance, with unpronounced muscle markings, small supra-orbital ridges, large frontal and parietal eminences, and medium-sized mastoid processes. The rectangular *os pubis* and wide subpubic angle are indicative of female sex, and Phenice's criteria support this inference.

The following characteristics indicate a late adolescent age for this individual:

(1) Skeletal epiphyses are in the process of fusion. Evaluation of the degree of fusion of nine key epiphyses, using McKern and Stewart's Total Skeletal Maturation Scale (Stewart 1979:154) produces a value of 25, which corresponds to an age range of 17-20 years, with a predicted age of 18.5 years.

(2) Maxillary third molars are unerupted and the left mandibular third molar has only recently reached occlusion. Following Trodden's (1982) dental eruption standards for Indian populations, this level of eruption corresponds to an age range of ca. 18-20 years.

Burial 1 shows the following features and pathologies. The sacrum is composed of six elements instead of the usual five. The lower right third molar (M3) is missing congenitally. Tooth wear is characteristic of young adult status in Pacific Northwest prehistoric populations. Small dentine patches are exposed on all first molars (M1), cusps on all second molars are faceted, and the lower left third molar (M3) shows very slight wear on the mesiobuccal cusp.

FIGURE 8

Decorated wapiti teeth and Dentalium *from Burial 8, EeRh 1.*

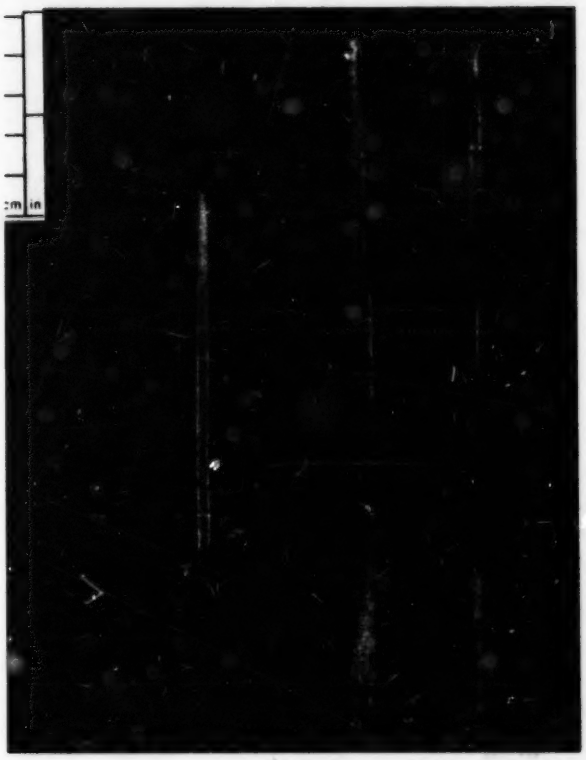

FIGURE 9

Bone artifacts associated with EeRh 1 burials. Burial 6: a, worked bone object from pit fill. Burial 8: b, bone needle; c, decorated bone tube; d, lynx fibula found inside tube.

The skeleton from Burial 6 is an adult female, as indicated by an oval pelvic basin, wide subpubic angle, broad sacrum, wide sciatic arch, and well defined preauricular sulci. The Phenice method supports these findings. This individual was assessed as a middle aged adult (i.e., greater than 45 years old) on the basis of the following characteristics:

(1) All epiphyses are fused and endocranial sutures are closed.

(2) Dental attrition is so advanced that tooth roots form the occlusal surface in all teeth except the second and third molars. In the latter case, dentine is exposed and secondary dentine response is present.

(3) Mild osteoarthritic lipping is evident along the articular margins of most major long bone joints.

(4) Degenerative vertebral osteophytosis is present throughout the vertebral column, and is pronounced in the lower lumbar region.

The Burial 6 skeleton exhibits other dental pathologies in addition to the wear noted above. Both fossae of the upper first molars (M1) show scars of periapical abscesses with lingual and buccal alveolar involvement extending into the alveolar fossa of the second molars (M2). Corresponding information for the mandibular teeth is not available.

A number of skeletal abnormalities and pathologies are also evident. Congenital bilateral shortening (brachydactyly) of the fourth metatarsals has resulted in deformation of the shaft of metatarsal III to accommodate the distal joint of metatarsal IV and the proximal joint of proximal phalange IV (see Figure 10). The Burial 6 skeleton is the only individual from EeRh 1 that exhibits this condition. Cybulski (personal communication, 1983) noted this anomaly in several skeletons from the north coast of British Columbia.

The right foot of the Burial 6 skeleton shows scars of a widespread periosteal infection involving the area surrounding the metatarsals and tarsals (see Figure 11).

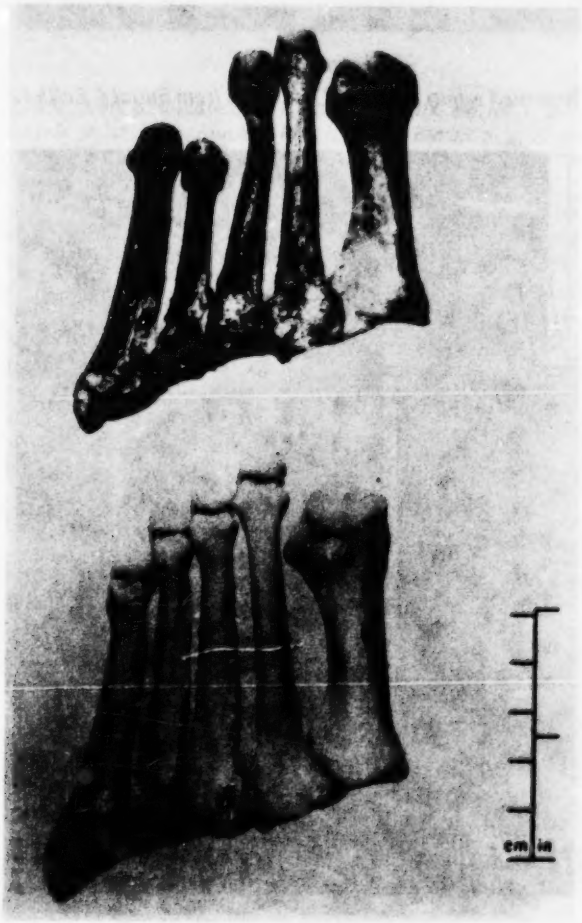

FIGURE 10

Left metatarsals I-V: top, pathological, from Burial 6, EeRh 1; bottom, normal, from UBC anatomical collection.

FIGURE 11

Right foot of skeleton from Burial 6, EeRh 1.

Irregular deposition of periosteal new bone occurs on the metatarsals, in particular on the proximal portions of metatarsals II and III, the proximal portion and shaft of metatarsal IV and throughout metatarsal V and on the proximal phalanx V. Two cloacae are present, one draining inferiorly from the proximal portion of metatarsals IV and V, the other draining inferiorly from the proximal portion of metatarsals II and III. The cortex on the superior and inferior surfaces of the cuboid, navicular and cuneiforms (I, II, III) and on the articular surfaces of talus and calcaneus adjacent to the other tarsals shows *post mortem* erosion.

A widespread periosteal infection of the type described above may have many causes: osteomyelitis, congenital syphilis, fracture, bacterial or fungal infections, tuberculosis, inflammatory arthritis. X-rays of the right foot bones show no evidence of osteomyelitis, congenital syphilis, or of a fracture; there is evidence, however, of disuse osteopenia (disuse osteoporosis, localized). The site of the sinus tract shows reaction to chronic tissue entry but no true bone sinus and no underlying osteomyelitis. This type of involvement is compatible with a number of infections, including tuberculosis, and chronic bacterial or fungal infections. Since there is no other sign of tuberculosis throughout the skeleton, chronic bacterial or fungal infection could be one of the causes for the anomaly. On the other hand, the M-T (metatarsal-tarsal) joints and the articular surfaces of the tarsals show lipping (marginal hypertrophy) and destruction of the articular surfaces. The damage is most noticeable on metatarsals V and IV, and less so on metatarsals II and III. This type of pathology suggests inflammatory arthritis. The apparent combination of periosteal inflammation and arthritic changes could indicate pulmonary hypertrophic osteoarthropathy (p.h.o.) (Cybulski, personal communication, 1983). Thus, the most likely cause of this pathology is either fungal/bacterial infection with inflammatory arthritis, or pulmonary hypertrophic osteoarthropathy.

The Burial 6 individual also exhibits a small cribriform lesion, consisting of localized deposits of porous periosteal bone, on the roof of the left orbit. The right orbit appears unaffected. This condition, commonly known as *cribra orbitalia*, has also been recorded in early historic native populations of the British Columbia coast, where it displays an apparent preference for immature individuals and adult females (Cybulski 1977). Cybulski suggests that iron deficiency anemia may be implicated in the etiology of these lesions. Iron deficiency may develop in response to numerous factors; deficient dietary iron intake, blood loss, injury, or impaired gastrointestinal absorption resulting from malabsorption syndromes, parasitic infections, or disease. Considering the other pathological manifestations in this skeleton, disease-induced iron deficiency appears indicated.

The skeleton from Burial 8 is that of a one-and-a-half to two-year-old child, as indicated by: closure of the metopic suture, fusion of the vertebral pedicles to each other but not to the vertebral body, degree of dental development and dental eruption, and long bone measurements (see Tables 3 and 4). There is no notable pathology.

Skeletal remains from Burial 8a indicate a newborn,

TABLE 3

Inventory of skeletal material from EeRh 1, Cache Creek

Element	Burial				
	1	6	8	8a	X
cranium	C	L	L	P	L
mandible	C	M	L	L	C
atlas	C	C	L	C	C/M
axis	C	C	L	C	C
cervical vertebrae 3-7	C	C	L	C	C
thoracic vertebrae	C	C	L	C	C
lumbar vertebrae	C	C	C	L	C
sacrum	C	C	L	L	L
coccyx	L	C	M	M	L
ribs	C/C	C/C	P/P	F/F	L/C
sternum	C	C	L	L	M
clavicles	M/L	M/C	C/C	F/C	L/C
scapulae	C/L	P/P	P/P	L/C	P/P
humeri	C/C	C/C	C/L	C/C	C/C
radii	C/C	C/C	C/L	C/C	C/C
ulnae	C/C	C/C	C/L	C/C	C/C
carpals	L/L	C/C	C/C	M/M	M/M
metacarpals	C/C	C/C	C/C	M/M	C/C
phalanges	C/C	C/C	C/C	M/M	C/C
innominates	C/C	C/P	C/C	C/C	C/C
femorae	C/C	C/C	C/C	C/C	C/C
patellae	C/C	C/M	C/M	M/M	C/C
tibiae	C/C	P/M	C/C	C/C	C/C
fibulae	C/C	M/C	C/C	C/C	C/C
calcanea	C/C	C/C	C/M	M/M	C/C
tali	C/C	C/C	C/C	M/M	C/C
other tarsals	C/C	C/C	C/C	M/M	C/C
metatarsals	C/C	C/C	C/C	M/M	C/C
phalanges	C/C	C/C	L/L	M/M	C/C

Code for State of Preservation:

C complete
L largely complete but some pieces missing
P partially complete without too much destruction
F fragmentary
M missing

For paired bones the condition is given by side, right followed by left, e.g. C/C.

TABLE 4

Inventory of dental material from EeRh 1, Cache Creek

burial		tooth type															
		right								left							
		M	M	M	P M2	P M2	C	I	I	I	I	C	P M2	P M2	M	M	M
1	upper	(I)	I	I	I	I	I	I	I	I	I	I	I	I/A	I	I	(I)
	lower	C	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
6	upper	I	I	I/A	I	I	P	I	I	I	I	I	I	I	I/A	I	I
	lower*																
8	upper			(I)	(I/)	I	I	P	I	I	I	I	I	(I/)	(I)		
	lower			(I)	(I/)	I	I	P	I	P	P	I	I	(I/)	(I)		
8a	upper					(I)	(I)	P	(I)	(I)	(I)	(I)	(I)				
	lower					(I)	P	P	P	(I)	P	P	(I)				
X	upper			(I)	I	I	I	P	I	I	I	I	I	I	(I)		
	lower			(I)	I	I	I	I	P	I	I	I	I	I	(I)		

I element present, in situ

(I) element present, in situ, unerupted

(I/) element present, in situ, in process of eruption

* catalogued but now missing

@ applicable for juveniles

A abscess

C congenital absence

P post-mortem loss

stillbirth, or almost full term fetus. No pathologies or anomalies were noted.

The Burial "X" skeleton is that of a child approximately two to three years old, as determined by long bone measurements and dental development. No pathology was observed.

Dating of Burials

Radiocarbon dates were obtained for Burials 1, 6, 8, and 8a (see Table 5). The dates for Burials 1, 6, and 8 are from unburnt fragments of the stake cists. The Burial 8a date is based on bone collagen extracted from unidentifiable fragments of skeletal remains. Given the extremely small amount of carbon (0.13 gm) extracted from the collagen sample, the Burial 8a age estimate should be treated with caution. With such a small sample, the potential for contamination effects is greatly increased. Specific sources of contamination, however, cannot be evaluated without detailed information on the immediate depositional environment of the sample (K. Hobson, personal communication, 1984). The small quantity of carbon is responsible for the high standard deviation observed, and may also have affected the mean age estimate (K. Hobson, personal communication, 1984).

TABLE 5

Radiocarbon dates for EeRh 1 Burials

Burial	*Radiocarbon Date (B.P.)*	*Sample number*
1	700±80	SFU 293
6	1330±260	SFU 227
8	760±110	SFU 228
8a	1960±400	SFU 292

If the problematic date for Burial 8a is accepted, the Cache Creek burials span all three phases defined for the late prehistoric period in the Lillooet region: the Nicola Phase (ca. 2800-1800 B.P.), Lillooet Phase (ca. 1800-1200 B.P.) and Kamloops Phase (ca. 1200 B.P.—European contact) (Stryd 1973), and the Thompson and Kamloops Phases (ca. 2400-1200 B.P. and 1200-200 B.P., respectively) recognized for the South Thompson River region (Rousseau and Richards 1985; cf. Wilson 1980).

Discussion and Comparisons

Mortuary Practices

Burial data have been instrumental in the initial formulation of some culture-historical units in Canadian Plateau archaeology (e.g., Sanger 1968). Still, little information is available on the range and significance of prehistoric mortuary pattern variability in south-central British Columbia. The data used in previous reviews and syntheses of Plateau burial practices (see Sanger 1968; Sprague 1971; Rodeffer 1973) often came from sites with poorly-documented archaeological contexts lacking absolute age determinations. The Cache Creek burials are a small sample. Nevertheless, they provide data on skeletal morphology and depositional context, and the absolute dates needed to obtain a better understanding of the mortuary behaviour and physical characteristics of late prehistoric Plateau populations.

Previous studies of Canadian and Columbia Plateau burials assigned wood cist burials a terminal prehistoric-early historic age (Sanger 1968:114; Sprague 1971:183, 187; Rodeffer 1973:122-123). The dated burials from EeRh 1 are the earliest wood cist graves reported for both the Canadian and Columbia Plateaus, and indicate that the antiquity of this form of interment has been underestimated. The occurrence of cairn/cist burials at 1330 B.P., and possibly as early as 1960 B.P., indicates that each of the late prehistoric phases recognized in south-central British Columbia is characterized by more than one form of burial. Temporal change in late prehistoric mortuary practices may not be the simple succession hypothesized by some studies (see Rousseau and Richards 1985; Sanger 1968:144-145).

The location of EeRh 1, on a hillside overlooking a river valley bottom, is similar to the general locational patterning reported for other ethnohistoric and archaeological burial sites in southern interior British Columbia (see Caldwell 1954:16; Dawson 1891:10; Teit 1900:300). Extensive lithic scatters in the immediate vicinity of EeRh 1 may indicate its proximity to open air habitation sites, as well as a reported but unrecorded housepit site originally located on the present townsite of Cache Creek (see Borden 1956).

The presence of wood cist burials underlying all of the boulder cairns investigated at EeRh 1 implies the original existence of at least 15 such interments, given the number of surface cairns Borden observed at the site. Additional unmarked graves may also be present, as one of the burials excavated was not directly associated with a cairn. Burial sites larger than Cache Creek have been reported at Kamloops (the Large site, Smith 1900:434-

436) and at Chase (EeQw 1, Sanger 1968), but they lack cairns and wood cist burials.

Few sites with cairn/cist burials are recorded for the Canadian Plateau. Caldwell (1954:10) reports two burial sites in the Okanagan Valley that contain an unspecified number of cedar cist graves as well as other forms of interment, but he presents virtually no information on their burial patterns. Smith (1900:402-403, 424) describes a single cairn/wood cist burial situated on a terrace of the Thompson River near Spences Bridge. Smith's excavations at the Government Hill site in Kamloops uncovered an unmarked cedar cist burial (Smith 1900:437). Although these latter two burials lack the documentation necessary for detailed comparative analysis, when the EeRh 1 data are pooled with Smith's descriptions, they permit a general study of cist grave variability and the relationship of cist burial to other ethnohistoric and archaeological mortuary practices.

The cist burials from Cache Creek, Spences Bridge, and Government Hill sites show some consistency in treatment of the body but considerable variation in method of disposal (see Table 6). All skeletons were flexed and covered to varying extents with fragments of matting. Cordage is associated with two skeletons. These data suggest that flexing and wrapping the body was common practice, and in some cases the body was also bound. There is little evidence of ochre used in either preparation or disposal of the corpse. The only skeletal remains covered with ochre are from Burial 1 at Cache Creek. If Smith's (1900:434, 437) descriptions of the Spences Bridge individual as an adult male and the Government Hill skeleton as an adult female are accurate, then all female burials in the sample exhibit an east-west body orientation while the single male is oriented north-south. Head orientation and body placement, however, vary within and between sites as well as among the female burials.

TABLE 6

Comparison of body treatment and disposition in cist burials from the Spences Bridge, Government Hill, and Cache Creek sites

Burial attribute	*Spences Bridge*[1]	*Government Hill Burial*[2]	*Cache Creek Burial 1*	*Burial 6*	*Burial 8*	*Burial 8a*
Mat cover	+	+	+	+	+	+
Cordage	+	-	+	-	-	-
Ochre	-	-	+	-	-	-
Body Orientation	north-south	east-west	east-west	east-west	east-west	east-west
Head Orientation (direction pointed)	south	west	west	east	east	east
Body Placement	face down	?	left side	right side	on back	right side

? Not reported

[1] Data compiled from Smith (1900:434)

[2] Data compiled from Smith (1900:437)

Relative to other forms of burial documented for the southern interior (i.e., pit burial, cremation, talus slope burial), cairn/cist burials represent a considerable amount of energy expenditure. The cists were constructed in shallow pits 43-76 cm in depth. The position of the stakes immediately adjacent to the skeletons in Burials 1 and 8 at EeRh 1 suggests, in these two cases, construction of the cist after placement of the body in the pit. At least five of the cists have stakes with burnt tops. Pit fill in three burials contained substantial quantities of charcoal. This is inferred to be a consequence of mortuary ritual that involved building a fire on the grave prior to the construction of a cairn. Dawson (1891:13) notes that ceremonial fires on graves were part of Shuswap and Lillooet burial rites but does not comment on the prevalence of the practice.

Boulder cairns covered all but two individuals interred in cists: the fetus/infant from Burial 8a at Cache Creek, and the young adult "female" from the Government Hill site. The present sample is too limited, however, to assess if the presence-absence of cairns is associated with the age or sex of an individual. Boulder cairns are not exclusive to cist burials. They were a common ethnohistoric practice (Teit 1900:329) and cover prehistoric pit burials (Caldwell 1954:17; Smith 1900:438).

Although the faunal remains in the pit fill from the Cache Creek burials have equivocal status as grave additions, faunal remains were evidently in direct association with the human skeletal remains in both Spences Bridge and Government Hill burials (Smith 1900:434, 437). Faunal remains are also reported as inclusions in talus slope and pit burials in south-central B.C.

The Cache Creek faunal sample includes deer, salmon, rodents, and probably dog (i.e., *Canis* sp.). Faunal inclusions described for the Spences Bridge burial include vertebrae from an unidentified small mammal, beaver teeth and mandible fragment, fish vertebrae, and two bird beaks, one of which is from a great blue heron (Smith 1900:434). The cist burial at the Government Hill site contained small mammal bones (Smith 1900:437). Ungulates, small mammals, and fish are the most common kinds of faunal additions reported for other archaeological burial sites (see Sanger 1968:154; Smith 1900:434-440; Stryd 1973:428; Wilson 1980:40). At Cache Creek, Burial 6 had the majority of the excavated faunal material (including the *Canid* remains). Two talus slope burials at Nicola Lake (Smith 1900:438, 440) and a multiple pit burial from EdRl 10, located in the Fraser River Valley near Lillooet (Sanger 1968:141) are the only other reported archaeological occurrences of *Canid* remains as grave additions. Skeletal remains from the talus slope burials are of a youth and female adult. The age and sex of the individual from EdRl 10 are unknown. There is little ethnographic information concerning the inclusion of animals in graves. Teit (1900:328) notes that "sometimes" dogs were killed and hung up at grave sites. This practice may in part account for the infrequent occurrence of *Canid* remains in archaeological burial sites.

All but one of the artifact grave goods from the Cache Creek burials were in direct association with the human skeletal remains. Most of the assemblage consists of utilitarian implements (i.e., points, retouched flake, biface, bark containers, bone needle). At least one artifact

(the decorated sandhill crane bone), however, probably had considerable ritual significance. The wapiti canine teeth and dentalium necklace, made of non-local shell and relatively hard to obtain animal parts, may represent a "primitive valuable" (see Dalton 1975) as well as an item of personal adornment. With the exception of the lynx fibula inserted into the decorated bird bone, similar kinds of grave inclusions have been described for other pit burials in the southern interior.

The decorated bone artifact associated with Burial 8 may have been a drinking tube. Teit (1900:313) notes that drinking tubes were made from the leg bones of cranes, geese, or swans, and sometimes had holes to allow their use as whistles. Girls used tubes during puberty ceremonials (Teit 1900:313). The tubes were often decorated with symbols related to the puberty rituals (Boas 1900: 379). Neither the ethnographic nor archaeological literature documents the insertion of another bone into a drinking tube. Given the role of drinking tubes in female puberty rites, such artifacts are not expected as inclusions in the grave of a pre-pubescent child, yet this is the case with Burial 8 at Cache Creek. Drinking tubes are reported at other burial sites (see Smith 1899:154, 1900:436, 439; Sanger 1968:121; Stryd and Baker 1968:53; Johnson-Fladmark 1973:10), however, the age and sex of the associated skeletal remains is noted for only one burial. At the Green Acres site (EeQw 6) along the South Thompson River, a pit burial containing the body of a child approximately two to five years old contained three decorated drinking tubes (Johnson-Fladmark 1973:9-10). In a broader context, Sanger (1968:136) suggests that the decorated antler digging stick handle in a young child's burial (no. 1) and decorated miniature bows in an infant's burial (no. 4) at Chase may be representations of inherited Guardian Spirits. Ethnographically, however, such spirit inheritance was practised only among males (see Ray 1939:88). Thus, present data suggest that the placement of objects, usually associated with puberty rituals, in the graves of preadolescent children was a selective mortuary practice in the late prehistoric period.

The variety and quantity of artifact additions with the Cache Creek burials is exceeded by assemblages from other burial sites in the southern interior: the cairn/cist burial at Spences Bridge (Smith 1900:434), and pit burials at the Large, Government, and Government Hill sites at Kamloops (Smith 1900:434-437), the Fountain (EeRl 19) and Bell (EeRk 4) sites near Lillooet (Stryd 1973:425-429), and the Chase (Sanger 1968:153-155) and Green Acres (Johnson-Fladmark 1973:9-10) sites along the South Thompson River.

The small number of excavated burials at Cache Creek and other sites in the southern interior limits the analysis of age- and sex-related differences in grave inclusions. Examination of the Cache Creek series in conjunction with other burial site data reveals some general trends. Not all individuals were buried with faunal and/or artifact inclusions. At Cache Creek, only the fetus/newborn from Burial 8a lacks grave additions. Other children's pit burials lacking grave inclusions include: Chase (Burial 2, Sanger 1968:153), Nicola Lake (Smith 1900:438), and the Murray site (EeRl 18) at Lillooet (Burial 2, Stryd and Baker 1968:50). The adult pit burial at the Pine Mountain site (EdRk 9) from the Lochnore-Nesikep locality also lacks grave additions (Sanger 1970:35). All other burials where adult status has been assigned contain some kind of grave addition. In two cases (Burial 2 from the Fountain site, Stryd 1973:428; and the Tranquille School site (EeRd 3) at Kamloops, Wilson 1980:40), grave additions are limited to a few faunal remains. Although the pattern is poorly documented, projectile points appear as grave goods in both male and female burials. In addition to Burial 1 at Cache Creek, points were associated with an adult female and fetal pit burial at EeRl 167 by the Bridge River (A. Stryd 1986, personal communication), and with a subadult female from a talus slope burial at EbRi 7 along the Nicoamen River (M. Skinner 1986, personal communication). Some differences in the kind and frequency of grave goods associated with children and adults are also evident. At Cache Creek, only the child from Burial 8 had associated non-utilitarian items. In the Lillooet region, a child approximately one to two years old, buried in the floor of housepit 19 at the Bell site had the most elaborate and varied grave inclusions (Stryd 1973: 425-427). At the Chase site, where data on five pit burials are available, the grave of an adult male (Burial 3, see Sanger 1968:153-155) had the most extensive artifact assemblage. However, at the same site, the grave additions associated with two child burials are more substantial than those from another adult male burial. The child pit

TABLE 7

Cranial measurements (in mm) and indices of the Lillooet skull and the Cache Creek skulls

measurement	Lillooet[1]	Cache Creek	
		Burial 1	Burial 6
cranial length	174	164*	176
cranial breadth	128*	139	134
cranial index	73.6*	84.8*	76.1
minimum frontal breadth	97	89	92
bizygomatic diameter	119	134*	130
transverse craniofacial index	93.0*	96.4*	97.0
upper facial height	67	66	65
upper facial index	56.3		
total facial height		114	
orbital height, right	38	35	34
orbital breadth, to maxillofrontale, right	43	41	40
orbital index	88.4	85.4	85.0
nasal height	49	50	45
maxillo alveolar length	52*	49	52
maxillo alveolar breadth	59	63	55
maxillo alveolar index	113.4*	128.6	105.8

*approximate measurements

1 from Cybulski (1980:54); alveolar length and breadth measurements corrected (Cybulski, personal communication 1985).

burial at the Green Acres site nearby also yielded a large and varied number of grave additions.

The above comparative analysis of an admittedly small sample shows that both the elaboration of grave form (i.e., boulder cairns and wood cists) and the kind and amount of grave goods included in pit burials in south-central British Columbia were not exclusively based on the age and sex of the deceased. Such variation is most evident in child burials. Differences in grave goods and grave form are often recognized as archaeological indicators of non-egalitarian social organization (Peebles and Kus 1977:431; Rothschild 1979:661). Previously, Sanger (1971:255) commented that differences in grave additions at the Chase site may reflect the existence of late prehistoric social organization more complex than that documented in the ethnohistoric period. The data from Cache Creek and more recently excavated burials provide further support for this inference, although detailed analysis of a more substantial data base is necessary to determine if the mortuary practices constitute evidence of ascribed rather than achieved status (see Peebles and Kus 1977:431-432), or of status differences at all.

Cranial and Post-Cranial Skeletal Measurements

Tables 7 and 8 compare cranial and post-cranial measurements for the adult skeletons from EeRh 1 with data from other documented burials.

TABLE 8

Limb bone measurements (in mm) and indices of the Gore Creek skeleton, Cache Creek skeletons and Prince Rupert Harbour series male averages

Measurement	Gore Creek[1]		Cache Creek				Prince Rupert Harbour[2]					
			Burial 1		Burial 6		R			L		
	R	L	R	L	R	L	N	$\bar{x}$	S.D.	N	$\bar{x}$	S.D.
clavicle maximum length	141*			135		140	15	153.27	7.41	14	155.86	7.38
humerus perimeter deltoid	76		62	61	60	61	46	80.37	5.53	52	78.44	5.24
perimeter under deltoid	62		59	59	57	57	57	67.21	3.49	66	65.09	3.36
ulna maximum length		268	256	249	251	248	34	263.91	11.35	37	262.73	10.32
radius maximum length	252	250	232	226	231	230	38	242.66	9.01	36	241.94	9.55
minimal perimeter		38	39	36	39	38	57	43.23	2.73	56	42.05	2.83
femur maximum length	439	441	416	417	399	397	47	420.11	16.13	45	421.51	13.83
midshaft diameter (A-P)	30	31	25	25	27	27	47	28.09	1.69	44	28.41	1.57
midshaft diameter (M-L)	27	27	24	25	25	25	47	26.94	1.59	44	27.34	1.57
pilastric index	111	115	104	100	108	108	47	104.49	7.03	44	104.14	7.20
subtrochanteric diameter (A-P)	23	23	24	24	24	23	67	24.25	1.58	64	24.94	1.60
subtrochanteric diameter (M-L)	36	35	28	29	30	30	67	34.39	2.02	63	34.37	2.22
platymeria index	64	66	86	83	80	83	67	70.68	5.12	63	72.21	5.17
tibia maximum length	369	368	341	339			32	346.03	14.86	35	347.11	16.23
diameter at nutrient foramen (A-P)	44	40	29	29			42	35.48	2.05	44	36.02	2.11
diameter at nutrient foramen (M-L)	23	23	20	20			43	22.95	2.02	46	23.00	1.84
cnemic index	52	58	69	69			43	64.58	5.41	44	64.10	6.27
fibula maximum length		361	331	333		327	16	334.94	13.22	17	332.12	13.95
stature[3] (cm)	168.08($\bar{x}$) 3.18(SD) 167.96*		161.37($\bar{x}$) 3.18(SD)		158.57($\bar{x}$) 3.18(SD)		63(N)			162.80($\bar{x}$) 3.81(SD)		

* as quoted in original article

† the Gore Creek clavicle length is approximate as there was slight post mortem damage.

Abbreviations: R right side; L left side; N sample size; $\bar{x}$ mean; SD standard deviation; A-P anteroposterior; M-L mediolateral. No entry indicates damage precluded measurement or bones not present.

Footnotes: 1. from Cybulski et al., (1981:53). 2. from Cybulski (1980:54). 3. based on mongoloid standard, Trotter and Glaser (1958).

The adult and adolescent crania from Cache Creek were compared with a skull from EeRl 6, in Lillooet, described by Cybulski (1980). Table 7 presents measurements of all three skulls. There are similarities between Burial 6 from Cache Creek and the Lillooet individual in cranial length, cranial index, and maxillo-alveolar index. The Burial 1 cranium, by contrast, is significantly rounder (brachycranic) than the other two, and has a very short, broad palate. The two Cache Creek skulls are more similar to each other in most facial dimensions than either is to the Lillooet cranium.

The long bone length measurements for the Cache Creek skeletons are similar to averages reported for the Prince Rupert series, but are shorter than the Gore Creek skeleton by as much as 20-30 mm in the case of the lower limb (see Table 8). The observed variation in stature between the Cache Creek skeletons and the Gore Creek skeleton may simply be a reflection of sexual dimorphism in body size, since the latter skeleton is that of an adult male, whereas both Cache Creek individuals are female, one of whom had not yet achieved full growth.

TABLE 9

Stable carbon isotope analysis of EeRh 1 skeletal material

Burial No.	*δ13 C (per mil)*	*% contribution of marine resources to diet*
1	-16.32	53
6	-15.83	60
8	-17.71	33
8a	-19.03	14
X	-15.61	63

(From Lovell 1982: Table 1)

An alternative hypothesis for the variation in stature between the Cache Creek individuals and the Gore Creek skeleton would analyze changing adaptive strategies. Cybulski *et al.* (1981:54) argue that differences in stature and build between the Gore Creek skeleton and Prince Rupert skeletons are attributable to adaptations to their respective environments (i.e., the difference between marine hunting and fishing, and inland hunting). One would expect the Cache Creek skeletons from an inland environment to more closely resemble the Gore Creek skeleton than the Prince Rupert skeletons.

Lovell's (1982) study of prehistoric diet in southern interior B.C., using stable carbon isotope analysis (see Chisholm *et al.* 1982), included all five skeletons from Cache Creek. Chisholm and Nelson (1983) analyzed the Gore Creek skeleton. Table 9 presents the δ13 C values and relative contribution of marine resources (i.e., anadromous salmon) for the Cache Creek sample. The age-related differences in intake of marine protein evident in Table 5 are a common trend in Lovell's study, and may represent differences in dietary habits and/or carbon metabolism between children and adults (Lovell 1982:22). The values for the two adult burials (nos. 1 and 6) are 53% and 60%, respectively.

The above proportions of marine protein are expected in the diet of late prehistoric plateau groups with a well-established subsistence-settlement system that focused on riverine resources (particularly salmon as a key resource, see Sanger 1968a, 1970; Stryd 1971, 1973). The values, however, contrast markedly with the Gore Creek individual, who had a virtually terrestrial diet (δ13 C = 19.49, 18% marine protein; see Chisholm and Nelson 1983). The Gore Creek skeleton is radiocarbon dated at 8250 + 115 B.P. (Cybulski *et al.* 1981:52), a time characterized by a mobile, generalized adaptive strategy. A shift from a generalized hunting and gathering adaptation to one emphasizing intensive harvesting of anadromous fish may have resulted in the presence of physical attributes among late prehistoric plateau populations that are usually associated with marine hunting and fishing adaptations (cf. Cybulski *et al.* 1981:54).

Conclusions

Over 30 years have elapsed since EeRh 1 was first recorded and excavated. Nevertheless, the data from these excavations still make an important contribution to our present understanding of prehistoric mortuary patterns and the physical characteristics of prehistoric populations in the southern interior plateau of British Columbia.

The Cache Creek data indicate that cairn/cist burials have considerable antiquity on the Canadian Plateau, extending to at least 1300 B.P. and possibly as far back as the second millennium B.P. Although cairn/cist burials have some antiquity, they are a rare grave form relative to the ubiquitous unmarked pit burials reported throughout southern interior British Columbia for the late prehistoric period. The present sample of cairn/cist graves indicates that this form of interment was not restricted to a specific sex or age class. A comparative analysis of the number and kind of grave goods from Cache Creek and other sites in the southern interior shows a similar crosscutting of age and sex lines in mortuary behaviour. These analyses raise important questions on the nature of late prehistoric social organization on the southern interior Plateau and its relationship to the ethnographic pattern.

The skeletal remains from Cache Creek represent one of the larger samples of burial populations reported for south central British Columbia. The Cache Creek data exhibit morphological characteristics similar to previously reported skeletal material from the southern interior and the north coast. Due to the small number of individuals described in the literature, however, it is not possible to present any comprehensive statement concerning the biological adaptations of these people to their environment.

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